

AMENDMENTS TO THE SPECIFICATION

Please add the following prior to the paragraph beginning on page 1, line 8 as follows:

--RADIALLY EXPANDABLE POLYTETRAFLUOROETHYLENE**CROSS-REFERENCE TO RELATED APPLICATIONS**

This application is a continuation of application Serial No. 08/888,438, filed July 7, 1997, which is a continuation of application Serial No. 08/701,543, filed August 22, 1996, now abandoned, which is a continuation of application Serial No. 08/265,794, filed June 27, 1994, now abandoned, each of which are expressly incorporated by reference as if fully set forth herein.

BACKGROUND OF THE INVENTION--

Please amend the paragraph beginning on page 2, line 1 as follows:

Paste-formed, extruded tubular PTFE products are well known, as are paste extrusion and paste forming manufacturing processes for producing such products. During such manufacturing processes, a PTFE resin is mixed with a liquid lubricant. A preformed resin--lubricant charge is then produced and extruded through an annular orifice to produce an unsintered PTFE tube. The extruded tube is heated to remove the lubricant and produce a porous, unsintered PTFE tube. The tube typically has a density of from 1.5 to about 1.75 gm/cc and accompanying porosities of 39% to 26%. If the unsintered tube is sintered by heating the tube to a temperature above its crystalline melting temperature, a nonporous tube results. See U. S. Patent Nos. 3,953,566, 3,962,153, 4,110,392, ~~4,187,309~~ 4,187,390, 4,283,448, 4,385,093, 4,478,665, 4,482,516, 4,877,661, and 5,026,513.

Please add the following prior to the paragraph beginning on page 2, line 30 as follows:

--BRIEF SUMMARY OF THE INVENTION--

Please amend the paragraph beginning on page 3, line 4 as follows:

I have discovered new PTFE products and a process and composition for producing the same. The new PTFE products can be significantly expanded to configurations which retain their structural integrity and which substantially retain their tensile strength and other desirable physical properties. As discussed in detail in the examples below, the new PTFE products have an unusually low REC (Radial Expansion Coefficient) and RER (Radial Expansion Ratio) which function to permit thin-walled PTFE tubes to expand about 50% to 400% before the tubes lose their structural integrity and suffer a rapid decline in tensile strength. The new PTFE products can also be predilated to insure that ~~and~~ an RER equal to one will be achieved.

Please amend the paragraph beginning on page 3, line 19 as follows:

Other features and advantages will become apparent from the following description and from the claims. The following examples are presented to illustrate the presently preferred embodiments of and practice of the invention and not by way of limitation of the scope of the invention.

Please add the following prior to the paragraph beginning on page 3, line 22 as follows:

--BRIEF DESCRIPTION OF THE DRAWING

FIG. 1 is a somewhat diagrammatic view of a preform and an extruded tube.

DETAILED DESCRIPTION OF THE INVENTION

Examples 1-17, below, concern expandable PTFE material formed as a result of stretching and subsequent sintering, as described in U.S. Patent No. 6,620,190, which is incorporated by reference herein. Examples 18-23, below, concern expandable PTFE material formed as a result of expansion in a first dimension, sintering, pre-dilating in a second dimension, and re-sintering.--

Please amend the paragraph beginning on page 4, line 3 as follows:

Referring now to FIG. 1, a [A] preform charge 10 was created by compacting the preform blend under 200 to 400 psi for approximately one minute in a stainless steel cylinder containing a center shaft. The center shaft extended along the centerline X of the cylinder and was concentric with the cylinder. The resulting preform charge 10 was a hollow cylindrical mass having a doughnut shaped circular cross sectional area 13, as shown in [the drawing] FIG. 1. The cylindrical hollow mid-section 15 in the preform charge 10 was occupied by the center shaft. The preform charge 10 was then loaded into a cylindrical barrel in a ram extruder and was extruded into several individual lengths of cylindrical thin-walled tubing 11 at a reduction ratio (RR) of 125:1. The total length of tubing 11 produced from the preform charge 10 was about twenty feet. The extruded tubing 11 had a microstructure characterized by nodes interconnected by fibrils. The reduction ratio equals the ratio of the cross sectional area 13 of the preform charge 10 to the cross sectional area 14 of the wall of the tubing 11. In the practice of the invention, the RR is less than 200 or 300 to 1; preferably equal to or less than 125:1. The ratio of the RR to the LL in the practice of the invention is preferably less than five. In prior art preform blends, the ratio of the RR to the LL is normally greater than five, and is typically nine or greater.

Please amend the heading on p. 6, line 18 as follows:

TYPICAL PROPERTIES OF FLUON CD [123] 509

Please amend the paragraph beginning on page 15, line 1 as follows:

As used herein, the terminology “radially-pre-dilated“ means that a porous highly crystalline polytetrafluoroethylene polymer tube is first radially dilated to increase the original inner (and outer) diameter of the tube and is then sintered to cause the dilated tube to contract radially to a configuration in which the diameter of the tube is less than the radially dilated diameter. When the radially dilated tube is sintered, the dilated tube is presently preferably contracted to a configuration in which the diameter of the tube substantially equals its original inner diameter. For example, and not by way of limitation, a sintered porous (the word “porous” indicates the extruded tube has been stretched along its longitudinal axis subsequent to being heated to remove lubricant and prior to being sintered to form highly crystalline PTFE polymer) tube of highly crystalline PTFE polymer having an inner diameter of [three] six mm is radially pre-dilated by radially dilating the tube to an inner diameter (ID) of fifteen millimeters and by then sintering the tube to cause the tube to radially contract to an inner diameter of six mm. Similarly, the three mm ID sintered porous tube of highly crystalline PTFE polymer is radially pre-dilated by radially dilating the tube to an ID of six millimeters and by then sintering the tube to cause the tube to radially contract to an inner diameter equal to its original inside diameter of three mm.

Please amend the paragraph beginning on page 26, line 9 as follows:

~~Having described my invention in such terms as to enable those skilled in the art to understand and practice it, and having identified the presently preferred embodiments thereof, I~~
Claim: The present invention has been described above in terms of certain preferred embodiments so that an understanding of the present invention can be conveyed. However, there are many alternative arrangements not specifically described herein, but with which the present invention is applicable. The scope of the present invention should therefore not be limited by the embodiments illustrated, but rather it should be understood that the present invention has wide applicability with respect to expanded PTFE generally. All modifications, variations, or equivalent elements and implementations that are within the scope of the appended claims should therefore be considered within the scope of the invention.